Development and Design of an Automatic Drain Oil System Using an Arduino-Based Single-Phase Motor

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ABSTRACT

This study aims to analyze the performance of an Arduino-based Automatic Drain Oil system using a single-phase motor to improve oil-draining efficiency in MSME chip production. This system is designed to address the inefficiencies of conventional methods, which are less effective in reducing oil content in products. By utilizing the principle of centrifugal force through a 70-watt single-phase AC motor, the effectiveness of the oil-draining process can be improved. The research methodology includes literature review, mechanical and electrical system design, equipment assembly, and functional testing. The results indicate that the Automatic Drain Oil system significantly enhances chip quality by reducing oil content more efficiently. This device features an automation mechanism controlled by an Arduino microcontroller. The implementation of this system is expected to improve production efficiency, reduce operational costs, and support the sustainability of MSMEs. With a maximum capacity of 3 kg, this device is well-suited to meet the production needs of MSMEs.

Keywords: *Automatic Drain Oil, Single-Phase AC Motor, Arduino, Oil Draining, MSMEs*